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ABSTRACT

In a sentence containing a conjunction "when," "once," or "as soon as," the events in the main and the subordinate clauses are understood as occurring closely together in time. This paper endeavors to uncover the subtle differences which nevertheless exist among them. Clauses headed by "when" can refer to a span of time, whereas "once" and "as soon as"-clauses must refer to a point in time. There is a clear correlation between the distribution of "once" and "as soon as" with respect to the verb in their clause, and the classification of verbs proposed by Vendler (1967). Further, the presuppositional nature of "when" is different from that of "once" and "as soon as." In sentences containing a clause headed by the latter two conjunctions, the events in both the main and the subordinate clauses are presupposed as starting at the point designated by the subordinate clause. The difference between "once" and "as soon as" is evidenced by the impossibility for "once" to connect two events which are causally unrelated. Sentences illustrating this point seem to lead to the conclusion that a "once"-clause gives the last in a series of events causally leading up to the event in the main clause. (Author/CLK)

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WHEN, ONCE and AS SOON AS

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The temporal conjunctions when, once and as soon as perform a very similar role in sentences. A temporal clause containing any one of them indicates the time at which the event in the main clause occurs. This can be seen in the following two sentences:

1. When (once, as soon as) Doris saw Michael, she waved.
2. When (once, as soon as) the sauce begins to bubble, turn off the heat.

When a speaker uses these three conjunctions, the emphasis is on contemporaneity between the two events, the one in the main clause and the one in the temporal clause. This is not to say that the events in the two clauses actually do occur at exactly the same time: the most usual interpretation of (1) and (2) is that the event in the temporal clause preceded the event in the main clause. Thus the conjunction after, which makes it explicit that the two events take place in succession, can also occur in (1) and (2):

3. (a) After Doris saw Michael, she waved.
   (b) After the sauce begins to bubble, turn off the heat.

This conjunction, however, is immediately felt to be different from the other three, and this difference lies in the relation which is set up between the main and the temporal clause. Although strictly speaking the events in the temporal and main clause of both (1) and (2) occur in succession, they occur in very rapid succession. By using when, once or as soon as instead of after, a speaker emphasizes this fact: he looks on the two events as being (nearly) contemporaneous. This sense of contemporaneity is absent in (3). It is this loose sense of contemporaneity which I shall be using in this paper[1].

On the face of it, it seems very hard to characterize the differences between the three conjunctions which form the title of this paper, especially the differences between as soon as and once. It is my purpose in this paper systematically to unearth what these differences are. We will begin our study of the differences between these three conjunctions with Vendler's theory of the classification of verbs.

Zeno Vendler (1967)[2] has distinguished four classes of verbs, based primarily on the types of time adverbials that can co-occur with them, and the types of tenses they most often occur in. Examples of the four classes are as follows:

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State	Activity	Accomplishment	Achievement
be sick	play	strip a chair	cross the border
be tall	wait	play a game	win
know	moo	sew a shirt	see
have	work	write a novel	find

Achievements take place in an instant. Accomplishments take a longer period of time for their completion, but there is a point at which they can be said to be completed. With activities and states there is no question of their completion or their being finished: they just go on over a period of time and then stop. Important for our purposes is the differential behaviour of verbs of these four classes in the presence of punctual adverbs. In the following sentences we can compare the behaviour of achievements, accomplishments, activities and states, respectively, with respect to punctual adverbs:

4. I crossed the border at 8 a.m.
5. ?Mary Ann stripped the chair at 3 p.m.
6. *Freddy played in the sandbox at 3 p.m.
7. John was sick at noon.

From the grammaticality of (4) and (7) we can conclude that achievements and states can occur in the preterite with a punctual adverb. However, it is impossible with an activity, as (6) shows, and questionable with an accomplishment, as in (5). However, insofar as (5) means anything, it means that the completion of the accomplishment of stripping the chair occurred at 3 p.m. It would seem, then, that (5) is questionable for the same reason that (6) is ungrammatical: a punctual adverb cannot refer to a process which goes on over a period of time. In both activities and accomplishments there is a process which goes on over a period of time; accomplishments denote, in addition, a point in time at which the accomplishment is completed, and the punctual time adverb can, with difficulty, refer to that point.

I will now proceed to make clear what this state of affairs has to do with the temporal conjunctions. The following sentence is grammatical with when, but ungrammatical with once or as soon as:

8. When (*once, *as soon as) we waited for the results, we got nervous.

The verb in the temporal clause is an activity. As we saw in (6), an activity is not possible in the preterite when the clause designates a point in time. When we replace the preterite form of the activity by began V-ing, was V-ing or stopped V-ing (or some equivalent), depending on whether we meant to designate the initial point, a midpoint, or an endpoint, respectively, of the activity (in other words, when we make it more explicit which point in time we mean), (8) becomes grammatical with once and as soon as as well as with when. The reason is that a when-clause can designate a span of time whereas a once-clause or an as soon as-clause cannot. Thus in (8) with once or as soon as, the conjunction indicates that a point in time must be chosen, but the form of the verb does

not indicate which point in time to choose. The disharmony is intolerable and the sentence becomes ungrammatical[3].

A possible objection to this explanation is that were waiting does not designate a point and yet it is grammatical in a clause headed by once or as soon as, for example if it were substituted for waited in (8). Even in the case of the progressive, however, once and as soon as designate a point and not the entire period at which the progressive is true. This point is the first one at which the progressive is true. It is for this reason that only with when can we finish (8) with were waiting as in (9):

9. When (*once, *as soon as) we were waiting for the results, we got nervous, but fortunately we already had most of the wait behind us.

In (9) with once or as soon as, the second conjunct of the sentence contradicts what the temporal clause of the first established, namely that the speakers got nervous at the beginning of the wait. But since when refers to the entire span of time, there is no contradiction with this temporal conjunction in (9): the first conjunct states that the getting nervous occurred sometime during the wait, and the second conjunct makes the point at which it occurred, more specific.

However, when does not need to refer to a span of time rather than a point, since it is also possible with achievements:

10. When John won the race, he was elated.

But in the case of activities, accomplishments and states, the when-clause designates a span of time which ends with the completion of the accomplishment, or the cessation of the activity or state. In other words, the when-clause (if it contains an accomplishment, achievement or activity) refers to every moment that the progressive of its verb is true. A similar situation holds true with states, even though they do not (normally) accept the progressive: the when-clause refers to every moment that the state is true.

Which point do the conjunctions once and as soon as designate? This varies with the class of the verb, as shown in (11) to (13):

11. Once (As soon as) John knew that he was sick, he went to bed.
12. Once (as soon as) Roger sewed the shirt, he gave it to his girlfriend.
13. Once (as soon as) Mary won the race, all the fans jumped up and cheered.

(We are leaving the preterite activity out of consideration here, since we have established that it is ungrammatical with once or as soon as.) In all three cases, the point of time referred to in the temporal clause is that at which the perfect of the verb first begins to be true. That is, with a state (11), the clause refers to the beginning of the period at which the state is true; with an accomplishment (12), the clause refers to the point at which it is completed; with an achievement (13), the clause refers to the instant at which the event takes place.

With (12), as with (5), the situation is not clear-cut, and therefore one may object that the only reason the temporal clause in (12) is interpreted as referring to the end of the accomplishment, is that the meaning of the main clause is more congenial to this type of interpretation. That this is not the case is shown by the oddity of the following sentences,

14. *Once (*as soon as) Mary Ann painted the chair, she used house paint.
15. *Once (*as soon as) Roger sewed the shirt, he didn't use a pattern.

as compared to the acceptability of (16):

16. Once (as soon as) Mary Ann painted the chair, she started on the table.

What has been said for the preterite also applies to the present tense:

17. Once (as soon as) John knows the answer, he'll kick himself for having been so dumb.
18. Once (as soon as) Mary Ann paints the chair, she's leaving.
19. Once (as soon as) Mary wins the race, we'll take her out to celebrate.

In addition, the present is possible with activities:

20. Once (as soon as) Freddy plays in the sandbox, he'll love it.

The reason for this seems to be that the present in the above sentences(17) to (20) does not refer to a real present but to a future perfect (cf. French). So the point in time is simply the first point at which this perfect is true. It is thus obvious that in the present the same criterion holds for the use of once and as soon as with activities as with the other classes of verbs: the point referred to is the one at which the perfect of the verb (Freddy has played) first is true.

Verbs in the perfect and in the progressive are marked in themselves as to what point of the event they are referring to. In each case a once-clause or an as soon as-clause containing such a verb, as usual refers to the point at which the event first is true. The progressive, of course, is impossible (usually) with states, but we can have temporal clauses such as the following in the other three classes:

21. Once (as soon as) Freddy was playing in the sandbox, he never wanted to get out.
22. Once (as soon as) Harry is telling his mother about the fire, Freddy will want to interrupt.
23. Once (as soon as) the fugitive is crossing the border, we'll jump him.

In each case the temporal clause refers to the first point at which the progressive is true. A once-clause or an as soon as-clause in the perfect refers to the first point at which the perfect is true.

24. Once (as soon as) Freddy had played in the sandbox for 5 seconds, his hair and his shoes were full of sand.
25. Once (as soon as) we've played the game, it'll be time for bed.
26. Once (as soon as) Mary had won the race, we left.
27. Once (as soon as) they had known each other for seven years, they got married.

This analysis of the meaning of once and as soon as will explain why once-clauses and as soon as-clauses take negatives only under certain circumstances. Sentence (28) is possible only with when:

28. When (*once, *as soon as) John didn't come, we started without him.

There is no point at which the event of the temporal clause, John's not-coming, begins to be true. Therefore there is no point for the once-clause or the as soon as-clause to refer to, and the sentence is thus ungrammatical with these two temporal conjunctions. As for the situation with when, both Heinamaki (1974:182) and Mandel (1974) state that there must be some expectation that the positive of the clause would occur, for the negative to be allowed in the temporal clause. Sentence (28) with when implies that John was expected to come at a certain time, or within a certain interval of time. Thus the when-clause refers to the span of time at which John was expected to come. But now the question is: why can't once- and as soon as-clauses refer to the first point of that same interval of time? I have no real answer to this question; the only explanation I can offer is that the interval is not clearly-defined enough for once-clauses and as soon as-clauses to be able to refer to the beginning of it.

In general, negated achievements and accomplishments may occur in temporal clauses headed by when but not in those headed by as soon as or once. The latter two conjunctions, as well as when, may, on the other hand, head clauses containing a negated activity and, less felicitously perhaps, a negated state.

29. When (once, as soon as) the cows didn't moo, we were sure they were dead.
30. When (once, as soon as) Julie wasn't fat, everyone thought she was beautiful.

However, both the once- and as soon as-clauses presuppose that the positive of their clause was true just before the point to which the temporal clause refers, the point at which the main clause takes place. For example, (29) with when might be said if you had come across some cows who were totally inert and silent. In order to find out whether they were dead or just asleep, you made a loud noise designed to startle them. It would be inappropriate to use once or as soon as in (29) in this situation. All three conjunctions would be appropriate in the situation where the barn was burning and all the cows were lowing to be let out. Thus a when-clause does not preclude the possibility that the opposite was true just before, but with once and as soon as this has to be the case. As Heinämäki has pointed out (1974:32) a change has to occur in the

truth-value of the when-clause at some time; but it does not have to be just before the point at which the main clause occurs, as it does with once-clauses and as soon as-clauses.

Similarly, the use of once or as soon as in (30) presupposes that Julie was fat before, and the use of when does not, although it does not preclude that possibility. Thus the when-clause in (30) can contain either yet or any more, whereas the once- and as soon as-clauses can contain only any more.

31. When Julie wasn't fat yet (any more), everyone thought she was beautiful.
32. Once Julie wasn't fat any more (*yet), everyone thought she was beautiful.
33. As soon as Julie wasn't fat any more (*yet), everyone thought she was beautiful.

This situation, that once- and as soon as-clauses presuppose that the opposite was true before, is therefore a direct consequence of the fact that they refer to the first point at which the perfect of the verb in their clause is true. Since a when-clause does not necessarily refer to this first point, there is no such presupposition in the case of when-clauses. But the possibility that the event in the main clause occurs at the first point at which the event in the when-clause is true, is not excluded, and may be implied through the conversation. In the situation of the burning barn, a sentence such as (29) with when would certainly imply, conversationally, that the cows were mooing before our conclusion that they were dead.

A further, related difference between when-clauses and once- and as soon as-clauses is that the latter imply that not only the opposite of the temporal clause was true before the point in question, but also the opposite of the main clause. The use of once and as soon as in (34) presupposes (35), but when does not (except perhaps conversationally):

34. John liked the policy when (once, as soon as) he saw its consequences.
35. It is not the case that John liked the policy before he saw its consequences.

Similarly, (36) presupposes (37) if once or as soon as is used but not if when is used.

36. When (once, as soon as) Freddy was playing in the sandbox, he was happy.
37. Freddy was not happy before he played in the sandbox.

This is shown by the fact that when can be used in a sequence such as that in (38), but once and as soon as cannot:

38. Freddy was always happy. When he was brushing his teeth, he was happy. When he was eating breakfast, he was happy. When was at the dentist, he was happy. ... When he was playing in the sandbox, he was happy.

Another corroborating fact is that still can be used in the main clause of (39) when the temporal clause is headed by when, but not when it is headed by once or as soon as:

39. When (*once, *as soon as) John saw the consequences of the policy, he still liked it.

The presupposition with sentences containing once and as soon as, that the truth-value of the main clause changes at the point to which the temporal clause refers, may be a consequence of two facts, taken together: first, the fact that once- and as soon as-clauses designate a point whereas when-clauses are not that specific; and second, that we can assume that Grice's (1967) Maxims of Conversation are followed here as well as elsewhere. His Maxim of Quantity (cf. R. Lakoff 1974:XVI-18) states in part that in conversation one must "be no more informative than required" (ibid.:XVI-18). There must be a reason why we are being so explicit about the point at which the main clause is true, and the reason seems to be that this is the point at which the main clause is first true.

In sentences containing once or as soon as we thus have the background assumptions that both the event in the main clause and the event in the subordinate clause first began to be true at the point designated by the subordinate clause. That these background assumptions can indeed be called presuppositions is shown by the fact that they pass the tests suggested by Morgan (1973:54) for presuppositions. In (40) to (42) both these assumptions still hold true.

40. It is not the case that once (as soon as) Freddy was playing in the sandbox he was happy.
41. Was Freddy happy once (as soon as) he was playing in the sandbox?
42. Maybe Freddy was happy once (as soon as) he was playing in the sandbox.

Up to this point once and as soon as have behaved the same even though we can sense that they are not totally synonymous. Since once- and as soon as-clauses do not differ in the point they designate with respect to the main clause, the difference lies in the relation that each conjunction draws between the two clauses. Consider the following sets of sentences:

43. As soon as (?once) John finished painting the chair, it started to rain.
44. As soon as (?once) Mary leaves, someone will call for her.

Although the judgments on the ungrammaticality of the sentences with once in (43) and (44) cannot be overwhelming, since a lot depends on the situation in which they are used, most informants consider the sentences with as soon as to be preferable to those with once. The action in the main clause seems to be totally unrelated to that of the subordinate clause (except on a fatalistic reading), except for their contemporaneity. The temporal connection between the two clauses is purely happenstance. The conjunction as soon as fits this situation because all it does is establish a connection of contemporaneity (in the sense explained at the beginning of this paper) between two events, and presuppose that

both events began at the same time (i.e., that they were not true before). However, once does not fit this situation, since it presupposes more than just contemporaneity between the two events. So if that is the only connection between the subordinate clause and the main clause, the use of once is improper. The connection that once establishes between the two clauses does not seem to be exactly one of cause, however. A causative connection can be implied, though it is not necessary, with conjunctions such as when or as soon as (cf. Heinämäki 1974:4):

45. When (as soon as) Martha fell in the bathroom, the plumbing sprang a leak.

A very possible interpretation of (45) is that Martha's falling caused the plumbing to spring a leak. But once is impossible in this sentence (with the same interpretation as (45)):

46. *Once Martha fell in the bathroom, the plumbing sprang a leak.

Nevertheless, there does seem to be a relation between the two clauses which is akin to causation. Sentence (47)

47. Once she stopped coming home nights, we started to wonder about her morals.

does imply that we would not have begun to wonder about her morals if she had not stopped coming home nights, just as in (45) the roof wouldn't have cracked if Martha had not fallen. The event in the temporal clause of (47) is a necessary condition for the event in the main clause.

48. Once (as soon as) Harry wrecked the car, John fixed it.

Intuitively, it does not seem to be enough to interpret (48) with once as meaning merely that the two events are contemporaneous and that if Harry had not wrecked the car, John would not have fixed it. We feel that there was something going on before Harry's wrecking the car which in some sense predisposed Harry to wreck the car and John to fix it. Consider (49).

49. Once (as soon as) the cows started mooing, we thought we would go out of our minds.

As soon as can have a causative interpretation here also. For this interpretation it is perfectly acceptable to conclude that only the cows' mooing was enough to make the speakers go out of their minds. With once in (49), however, the implication is that many things had happened to upset the speakers, all of them tending but not quite sufficient to send them out of their minds; but the cows' mooing was the last straw. The cows' mooing was therefore a necessary condition for the event in the main clause, but by itself not a sufficient one; hence the implication of earlier events tending to the same end. The event in the once-clause is the last of these necessary but not sufficient conditions, owing to the contemporaneity of it with the main clause (and to the fact that, non-scientifically speaking at least, causes are thought to precede their effects, or at least not to follow them). The event in the once-clause is, in

fact, the last straw. Our intuitions did not, therefore, play us wrong with (48). Since the once-clause only indicates the last straw, we were right in assuming that there were other factors which had led to the occurrence of the main clause.

As usual, there is a kink. Compare the following sentences:

39. *Once John saw the consequences of the policy, he still liked it.
50. John still liked the policy once he saw its consequences.

As soon as shows no such effects under adverb preposing:

39. *As soon as John saw the consequences of the policy, he still liked it.
51. *John still liked the policy as soon as he saw its consequences.

Sentence (39) is ungrammatical because the presuppositions of still and those of once or as soon as clash. The presuppositions of still are that the event in its clause went on in the past and contrary to what might have happened, is going on in the present. Why do these presuppositions not clash with those of once in (50)? Morgan (1969) has proposed that presuppositions should be seen as being set up from left to right, and Karttunen (1973) has similarly proposed that the initial context of a sentence is incremented in a top-to-bottom, left-to-right fashion by the presuppositions of earlier clauses. I believe that (39), (50) and (51) show that the presuppositions connected with some words are weaker than those connected with others. Here, those of once are weaker than those of still or as soon as. When in (50) the presuppositions of still have already been set up by the time we get to once, the presuppositions of once are weakened to conform. When the presuppositions of once are set up first, as in (39), those of still are not weakened to conform and the sentence is ungrammatical. The presuppositions of as soon as and still, on the other hand, are of about the same strength and neither set is weakened in the face of the other. Thus both (39) with as soon as and (51) are ungrammatical[5].

A similar situation occurs with (14) and (52):

14. *Once Mary Ann painted the chair, she used house paint.
52. Mary Ann used house paint once she painted the chair.

Normally, a once-clause containing an accomplishment refers to the completion of that accomplishment. Sentence (14) with once is anomalous since there would be no need for Mary Ann to use any kind of paint after she had finished painting. We interpret (52), however, as meaning either that Mary Ann painted other things after she painted the chair; or even that the once-clause points to the beginning of Mary Ann's painting the chair, because the previously-established situation ("Mary Ann used house paint") is more congenial to this type of interpretation than to the normal one. Thus the presuppositions of once are easily cancelled or weakened. But note that they remain as true-to-form as possible: under the emergency interpretation, the point that is referred to in the once-clause is the point at which Mary Ann starts to paint the chair, not some arbitrary midpoint. Again, the presuppositions of as soon as do not undergo such weakening:

14. *As soon as Mary Ann painted the chair, she used house paint.
53. *Mary Ann used house paint as soon as she painted the chair.

To summarize the findings of this paper: we have seen that a when-clause refers to a span of time whereas a once-clause or an as soon as-clause refers to a point of time and, specifically, the first point at which we can say that the event in the clause has been true. This has two consequences: in the first place, a negated accomplishment or achievement cannot occur in a once-clause or an as soon as-clause, presumably because the point at which the negative is first true is not clear enough. In the second place, once-clauses and as soon as-clauses imply that the negation of the event in the clause was true at the time just preceding the point to which they refer, the point at which the main clause takes place. Furthermore, once-clauses and as soon as-clauses but not when-clauses presuppose that the negation of the main clause was true just before the point to which the temporal clause refers. Besides these presuppositions, as soon as merely implies contemporaneity; once implies, in addition, that the event in its clause is the "last straw" in a series of events leading to the occurrence of the event in the main clause. The presuppositions in the case of once can be violated, however, if there is preceding it in the sentence a word with a contradictory meaning or presupposition of a sufficiently great strength.

FOOTNOTES

[1] Heinämäki (1974:108) discusses this concept in slightly different terms in characterizing the difference between after and as soon as.

[2] Cf. also Heinämäki 1974:7-12 and Dowty 1972:16-29.

[3] We are leaving out of consideration here the possibility of a frequentative interpretation for (8) with once or as soon as, which would make the sentence grammatical.

[4] The situation with achievements is complicated by such sentences as (i):

(i) Once (as soon as) Mary was winning the race, all the fans got excited.

The verb in the temporal clause does not point to an instantaneous event as is the case with achievements. Heinämäki (1974:12) and Dowty (1972:27), as well as Vendler himself (1967:100) attest to the fact that membership in a class is not in the first place a characteristic of a certain lexical item, but a property of a certain verb in a certain use. In (i) above, be winning the race is used as a state rather than an achievement; its meaning is equivalent to be ahead in the race. Examples of verbs which belong to different categories in different uses can be multiplied: run (activity) vs. run to the store (accomplishment) is one. Even such things as the specificity of the object can be a factor: find a fossil is an achievement whereas find fossils is an activity.

[5] This explanation is largely a fudge; it seems to me that something of the sort is going on, but I haven't been able to find enough other examples of this kind of weakening or cancelling to know exactly what is going on.

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